DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 3/29/2010 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Park (US Patent 5730192).

Regarding to claim 1, as seen in Figures 1-10, Park teaches a method of injecting an electrolytic solution (e.g. electrolyte 70 as described in col. 2 line 62 through col. 4 line 37, col. 6 line 11 through col. 8 line 31) into an electrolytic solution container (e.g. battery case 60) of which a portion (the upper portion of the battery case 60 for injecting the electrolytic solution) is opened, wherein the injection is conducted by

utilizing a centrifugal force. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). The method of Park comprises:

- dropping the electrolytic solution (e.g. 70) to the opened portion of the electrolytic solution container (e.g. 60) by filling port (220 as seen in Figure 10). Park also teaches filling the electrolytic solution container (e.g. case 60) having winding assembly (e.g. 50) with electrolyte (70; see col. 2 lines 62-67, col. 6 lines 23-25, Figures 1-2), therefore the opening into which the electrolytic solution (or electrolyte 70) is dropped of Park extends across one side (e.g. the top side) of the electrolytic solution container (e.g. case 60).;
- fixing the electrolytic solution containing vessel on a turntable (see body 230 in Figures 4, 6,7 and 9) rotatable about a predetermined center so that the opened portion is directed toward the center (as seen in Figures 6 and 9 as the filling port 220 facing the center); and
- rotating the turntable (e.g. body 230) about the center, to thereby inject said electrolytic solution (e.g. electrolyte 70) that has been dropped into the electrolytic solution container (e.g. case 60). (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). Park teaches the electrolyte (e.g. 70) flows into the electrolytic solution container (e.g. case 60) by centrifugal force as body 230 rotates, and the electrolyte poured into the container (e.g. case 60) permeates into winding assembly 50 (see col. 3

lines 63-67, col. 5 lines 24-36). In other words, the electrolyte solution (e.g. electrolyte 70) of Park travels by the operation of centrifugal force.

- There is only a single opening (see opening at the end 62 of case 60 in Figure 1, also see the outline of case 60 in Figure 2) in the electrolytic solution container (e.g. case 60 as seen in Figures 1-3). Park discloses the electrolytic solution is filled in the electrolytic solution container when the container has the winding assembly (e.g. 50) therein (see col. 2 line 62 through col. 3 line 2). Park also discloses electrolytic solution container (e.g. case 60) is sealed at the side of the only single opening in the final product as seen in Figures 1-3. Therefore, the only single opening in the electrolytic solution container (e.g. case 60) of Park must be sealed after the electrolytic solution (e.g. electrolyte 70) has been injected into the electrolytic solution container (e.g. case 60)

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. The factual inquiries set forth in *Graham* v. *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

6. Claims 4-6 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 5730192) as applied to claim 1 above, in view of Mikoshiba et al. (US Patent 6384321), and further in view of Yamanaka et al. (US 2001/0004901).

Regarding claims 4-6 and 9, Park teaches a method of injecting an electrolytic solution into an electrolytic solution container as set forth above.

The difference between Park and the instant claims is the requirements of the electrolytic solution containing vessel such as having rectangular in shape; and an internal size in one direction of a section of the electrolytic solution containing vessel is in the ranges of 1 to 200 μm, 10 to 200 μm, and 20 to 150 μm.

Mikoshiba et al. discloses an electrolytic solution container having rectangular shape. (See Figure 1).

It would have been obvious to one skilled in the art at the time the invention was made to modify the method of Park by using rectangular container as taught by Mikoshiba et al., because such modification would involve nothing more than a mere substitution of equivalents (e.g. a rectangular container for a cylindrical container) known for the same purpose (e.g. for containing electrolyte solution). See MPEP 2144.06.

Yamanaka et al. is relied upon for teaching a solar cell battery with a rectangular compartment bordered by a glass frit 7 and electrodes 4 and 8 (see Figures 1-4 and 9-

10), wherein the height of the compartment, or an internal size in one direction of a section of the electrolytic solution containing vessel, is found to be 2.1-70 μm by adding the diameter of 2-20 μm of the glass beads 9 and the thickness of 0.1-50 μm of the semiconductor layer 5. (See paragraphs 0039, 0077 and 0088-0096).

It would have been an obvious to one skilled in the art at the time the invention was made to have the dimension of the electrolyte solution container in modified Park as taught by Yamanaka et al., because such modification is nothing more than matter of design choice to the size of the electrolyte solution container (or the size of the solar cell). Gardner v. TEC Systems, Inc., 725 F.2d 1338, 220 USPQ 777 (Fed. Cir. 1984), the Federal Circuit held that, where the only difference between the prior art and the claims was the recitation of relative dimensions of the claimed container and a container having the claimed relative dimensions would not perform differently than the prior device (e.g. containing electrolyte solution), the claimed container was not patentably distinct from the prior container. The skilled artisan would have been able to select an appropriate thickness/size based on the desired properties of the container. Furthermore, modified Park does not explicitly disclose the size in one direction of the electrolyte solution container being in the ranges of 1 to 200 μm, 10 to 200 μm, and 20 to 150 μm. As the cost and efficient of the final device are variables that can be modified, among others, by adjusting the size of the container, the precise size in one direction of the container would have been considered a result effective variable by one having ordinary skill in the art at the time the invention was made. As such, without showing unexpected results, the claimed size in one direction of the container cannot be

considered critical. Accordingly, one of ordinary skill in the art at the time the invention was made would have optimized, by routine experimentation, the size in one direction of the container in the method of modified Park to obtain the desired balance between the cost and the efficiency of the final device (*In re Boesch*, 617 F.2d. 272, 205 USPQ 215 (CCPA 1980)), since it has been held that where the general conditions of the claim are disclosed in the prior art, discovering the optimum or workable ranges involves only routine skill in the art. (*In re Aller*, 105 USPQ 223).

7. Claims 7-8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 5730192) as applied to claim 1 above, in view of McEwen et al. (US Patent 5965054).

Regarding claims 7-8, Park teaches a method of injecting an electrolytic solution into an electrolytic solution container as set forth above.

Park does not teach the viscosity of the electrolytic solution being not more than 20 or 10 cp.

McEwen et al. teaches an electrolytic solution used in batteries, photovoltaic devices having viscosity of 0.59 cP. (See col. 5 lines 18-26), wherein the viscosity of the solution is mainly the viscosity of the solvent (See table 1). McEwen et al. al also teaches the viscosity can be lowered by adding low viscosity agents (See col. 3 lines 11-17).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the electrolytic solution taught by McEwen et al. in the

method of Park, because McEwen et al. teaches this electrolytic solution would be useful in electrical storage device such as batteries or photovoltaic devices by providing a high conductivity. (See the Summary of McEwen et al.).

8. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent 5730192) in view of Mikoshiba et al. (US Patent 6384321), and further in view of Yamanaka et al. (US 2001/0004901).

Regarding to claim 10, as seen in Figures 1-10, Park teaches a method of injecting an electrolytic solution (e.g. electrolyte 70 as described in col. 2 line 62 through col. 4 line 37, col. 6 line 11 through col. 8 line 31) into an electrolytic solution container (e.g. battery case 60) of which a portion (the upper portion of the battery case 60 for injecting the electrolytic solution) is opened, wherein the injection is conducted by utilizing a centrifugal force. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). The method of Park comprises:

- dropping the electrolytic solution (e.g. 70) to the opened portion of the electrolytic solution container (e.g. 60) by filling port (220 as seen in Figure 10). Park also teaches filling the electrolytic solution container (e.g. case 60) having winding assembly (e.g. 50) with electrolyte (70; see col. 2 lines 62-67, col. 6 lines 23-25, Figures 1-2), therefore the opening into which the electrolytic solution (or electrolyte 70) is dropped of Park extends across one side (e.g. the top side) of the electrolytic solution container (e.g. case 60).;

- fixing the electrolytic solution containing vessel on a turntable (see body 230 in Figures 4, 6,7 and 9) rotatable about a predetermined center so that the opened portion is directed toward the center (as seen in Figures 6 and 9 as the filling port 220 facing the center); and
- rotating the turntable (e.g. body 230) about the center, to thereby inject said electrolytic solution (e.g. electrolyte 70) that has been dropped into the electrolytic solution container (e.g. case 60). (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). Park teaches the electrolyte (e.g. 70) flows into the electrolytic solution container (e.g. case 60) by centrifugal force as body 230 rotates, and the electrolyte poured into the container (e.g. case 60) permeates into winding assembly 50 (see col. 3 lines 63-67, col. 5 lines 24-36). In other words, the electrolyte solution (e.g. electrolyte 70) of Park travels by the operation of centrifugal force.
- There is only a single opening (see opening at the end 62 of case 60 in Figure 1, also see the outline of case 60 in Figure 2) in the electrolytic solution container (e.g. case 60 as seen in Figures 1-3). Park discloses the electrolytic solution is filled in the electrolytic solution container when the container has the winding assembly (e.g. 50) therein (see col. 2 line 62 through col. 3 line 2). Park also discloses electrolytic solution container (e.g. case 60) is sealed at the side of the only single opening in the final product as seen in Figures 1-3. Therefore, the only single opening in the electrolytic solution container (e.g. case 60) of Park must be sealed after

the electrolytic solution (e.g. electrolyte 70) has been injected into the electrolytic solution container (e.g. case 60).

Park does not specifically teach using the method of injecting electrolytic solution into an electrolytic solution container in manufacturing a wet type photoelectric conversion device.

Mikoshiba et al. discloses an electrolytic solution container (e.g. including portions 1, 7 and 8 as shown in Figure 1) having only one single opening for injecting electrolyte solution (see electrolyte 10 being injected into the container, which is the photoelectric device, by port 9 as seen in Figure 1) in a method of manufacturing a photoelectric device (e.g. a solar cell). Yamanaka et al. is relied upon for teaching the photoelectric device being a wet type photoelectric device. (see paragraphs 0046, 0087-0140 as Yamanaka et al. describes liquid such as electrolytic solution being injected to opening of a electrolytic solution container, or the solar cell itself).

It would have been obvious to one skilled in the art at the time the invention was made to use the method of Park in manufacturing a wet type photoelectric device as taught by Mikoshiba et al. and Yamanaka et al., because such usage is nothing more than an intended use of the method of Park for injecting an electrolytic solution into a container. The recitation of a new intended use for an old method does not make a claim to that old method patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997). See MPEP 2111.02, 2112.01 and 2114-2115.

9. Claim 11 is rejected under 35 U.S.C. 103(a) as being unpatentable over Park (US Patent5730192) in view of Mikoshiba et al. (US Patent 6384321)

Regarding to claim 11, as seen in Figures 1-10, Park teaches a method of injecting an electrolytic solution (e.g. electrolyte 70 as described in col. 2 line 62 through col. 4 line 37, col. 6 line 11 through col. 8 line 31) into an electrolytic solution container (e.g. battery case 60) of which a portion (the upper portion of the battery case 60 for injecting the electrolytic solution) is opened, wherein the injection is conducted by utilizing a centrifugal force. (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). The method of Park comprises:

- dropping the electrolytic solution (e.g. 70) to the opened portion of the electrolytic solution container (e.g. 60) by filling port (220 as seen in Figure 10). Park also teaches filling the electrolytic solution container (e.g. case 60) having winding assembly (e.g. 50) with electrolyte (70; see col. 2 lines 62-67, col. 6 lines 23-25, Figures 1-2), therefore the opening into which the electrolytic solution (or electrolyte 70) is dropped of Park extends across one side (e.g. the top side) of the electrolytic solution container (e.g. case 60).;
- fixing the electrolytic solution containing vessel on a turntable (see body 230 in Figures 4, 6,7 and 9) rotatable about a predetermined center so that the opened portion is directed toward the center (as seen in Figures 6 and 9 as the filling port 220 facing the center); and

- rotating the turntable (e.g. body 230) about the center, to thereby inject said electrolytic solution (e.g. electrolyte 70) that has been dropped into the electrolytic solution container (e.g. case 60). (See col. 2 line 62 to col. 4 line 29; col. 6 line 12 to col. 8 line 40). Park teaches the electrolyte (e.g. 70) flows into the electrolytic solution container (e.g. case 60) by centrifugal force as body 230 rotates, and the electrolyte poured into the container (e.g. case 60) permeates into winding assembly 50 (see col. 3 lines 63-67, col. 5 lines 24-36). In other words, the electrolyte solution (e.g. electrolyte 70) of Park travels by the operation of centrifugal force.
- There is only a single opening (see opening at the end 62 of case 60 in Figure 1, also see the outline of case 60 in Figure 2) in the electrolytic solution container (e.g. case 60 as seen in Figures 1-3). Park discloses the electrolytic solution is filled in the electrolytic solution container when the container has the winding assembly (e.g. 50) therein (see col. 2 line 62 through col. 3 line 2). Park also discloses electrolytic solution container (e.g. case 60) is sealed at the side of the only single opening in the final product as seen in Figures 1-3. Therefore, the only single opening in the electrolytic solution container (e.g. case 60) of Park must be sealed after the electrolytic solution (e.g. electrolyte 70) has been injected into the electrolytic solution container (e.g. case 60)

The difference between Park in the instant claim is that the electrolytic solution is injected into a space between a semiconductor electrode with a dye and a counter electrode.

Mikoshiba et al. teaches injecting an electrolyte solution (see electrolyte 10 in Figure 1) through only a single opening (see Figure 1) into the a space between a semiconductor electrode (see semiconductor electrode 4 in Figure 1) of a semiconductor material (see semiconductor material 3) with a dye (see Example 1) and a counter electrode (see electrode 6 in Figure 1).

It would have been obvious to one skilled in the art at the time the invention was made to use the method of Park to inject an electrolytic solution into a space between a semiconductor electrode and a counter electrode as taught by Mikoshiba et al., because Mikoshiba et al. teaches such injection of electrolyte would obtain a solar cell (see Example 1). Furthermore, such usage is nothing more than the intended use of the method disclosed by Park. The recitation of a new intended use for an old method does not make a claim to that old method patentable. *In re Schreiber*, 44 USPQ2d 1429 (Fed. Cir. 1997). See MPEP 2111.02, 2112.01 and 2114-2115.

Response to Arguments

10. Applicant's arguments filed 3/29/2010 have been fully considered but they are not persuasive.

Applicant argues that none of the references teaches or suggests the amended limitation "there is only a single opening in the electrolytic solution container that is

sealed after the electrolytic solution has been injected into the electrolytic solution container". However, the Examiner respectfully disagrees. Park does teach said limitation (see the rejection above). Mikoshiba et al. also teaches the limitation (see Figure 1 of Mikoshiba et al.).

Conclusion

11. Any inquiry concerning this communication or earlier communications from the examiner should be directed to THANH-TRUC TRINH whose telephone number is (571)272-6594. The examiner can normally be reached on 8:30 am - 5:00 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Basia Ridley can be reached on 571-272-1453. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TT
6/2/2010

/Basia Ridley/
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